

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (currently amended) A gas control system that controls energizing an electrical resistance ceramic-igniter from a power source, said control system comprising:

- (i) a gas-fired appliance;
- (ii) an electrical resistance ceramic-igniter;
- (iii) a control device being configured and arranged so as to control operation of the electrical resistance ceramic-igniter, the control device and the electrical resistance ceramic-igniter being operationally coupled to the appliance;

wherein the control device is configured and arranged so as to warm-up the electrical resistance ceramic-igniter to temperature at or above an ignition temperature for a gas being combusted;

wherein the control device is configured and arranged such that if it is determined that the electrical resistance igniter is at or above an ignition temperature, the control device controls the flow of gas for combustion; and

wherein the control device also is configured and arranged so that following successful ignition of the gas, the control device adjusts the amount of gas flow and the amount of voltage and current applied to the igniter are controlled so the electrical resistance ceramic-igniter is maintained at a temperature less than the gas ignition temperature but above room temperature; and

wherein so that upon detection of a loss of flame, the control device adjusts the amount of gas flow and the amount of voltage and current applied to the igniter such that the electrical resistance ceramic-igniter is can be re-heated and the gas is so as to re-ignited the gas within about 4 second or less.

Claim 2. (currently amended) The gas control system of claim 1, wherein the gas control system further controls operation of one or more gas control valves, which valves control the flow of gas for combustion, and

wherein the control device is configured and arranged so as to open the one or more gas valves after the control device determines that the electrical resistance ceramic-igniter is heated to a temperature at least equal to the gas ignition temperature, and

wherein the control device is configured and arranged such that following successful ignition of the gas, the control device regulates the amount of gas passing through the one or more gas control valves so the electrical resistance igniter is maintained at a temperature less than the gas ignition temperature but above room temperature.

Claim 3. (previously presented) The gas control system of claim 1, wherein the control device is configured and arranged so as to selectively control energization of the electrical resistance igniter following successful ignition of the gas, where the electrical resistance igniter is selectively energized so that the electrical resistance igniter is maintained at a predetermined temperature that is less than gas ignition temperature, which predetermined temperature is established such that a time required to reheat the electrical resistance igniter from the predetermined temperature to a minimum temperature required for ignition of the gas, is within about 4 second or less.

Claim 4. (previously presented) The gas control system of claim 3, wherein the control device includes:

a switching mechanism operably connected between the electrical resistance igniter and the power source;

a micro-controller and an applications program for execution in the micro-controller; and

wherein the applications program includes instructions and criteria for outputting control signals to the switching mechanism to selectively control voltage and current being applied to the electrical resistance igniter, outputting control signals to the switching mechanism so as to heat the electrical resistance igniter to the gas ignition temperature, and

outputting control signals to the switching mechanism, following successful ignition of the gas, to selectively heat the electrical resistance igniter so as to maintain the igniter at a predetermined temperature that is less than the gas ignition temperature.

Claim 5. (previously presented) The gas control system of claim 4, wherein the applications program further includes instructions and criteria for:

heating the electrical resistance igniter to the predetermined temperature that is set so that a time required to reheat the electrical resistance igniter from the predetermined temperature to a minimum temperature required for ignition of the gas, is within about 4 second or less .

Claim 6. (currently amended) A gas control system that controls energizing an electrical resistance igniter from a power source and that controls operation of one or more gas control valves, which valves control the flow of gas for combustion, said gas control system comprising:

(i) an electrical resistance igniter;
(ii) a control device being operably coupled between the electrical resistance igniter and the power source and being operably connected to the one or more gas valves;

wherein the control device is configured and arranged to selectively apply a voltage to the electrical resistance igniter responsive to an input signal calling for heat; and

wherein the control device is configured and arranged: so the electrical resistance igniter is heated by the selectively applied voltage so as to be at a temperature at or above a temperature for igniting the gas, a gas ignition temperature,

such that upon determining that the electrical resistance igniter has been heated to the gas ignition temperature, the control device is configured and arranged to control the flow of gas for combustion by controlling the opening of the one or more gas valves are opened, and

such that upon determining that the gas has been successfully ignited, the control device is configured and arranged to control the voltage being applied to the electrical resistance igniter is controlled so as to maintain the electrical resistance igniter at an operational temperature that is less than the gas ignition temperature but above room temperature, and the control device is configured and arranged to regulate the amount of gas passing through the one or more gas valves so the electrical resistance igniter is maintained at a temperature less than the gas ignition temperature but above room temperature.

and such that upon detection of a loss of flame, the control device is configured and arranged to adjust the amount of gas flow and the amount of voltage and current applied to the igniter such that the electrical resistance igniter is can be re-heated so as to the gas is re-ignited the gas within about 4 second or less.

Claims 7-15. (cancelled)

Claim 16. (previously presented) The gas control system of claim 1 wherein the gas-fired appliance is a stove, oven, or clothes dryer.

Claim 17. (previously presented) The gas control system of claim 1 wherein the gas-fired appliance is a water heater.

Claim 18-20. (cancelled)

Claim 21. (cancelled)

Claim 22. (cancelled)

Claims 23-31. (cancelled)

Claim 32. (previously presented) The gas control system of claim 1 wherein the gas-fired appliance is a stove.

Claim 33. (previously presented) The gas control system of claim 1 wherein the gas-fired appliance is an oven.

Claim 34. (previously presented) The gas control system of claim 1 wherein the gas-fired appliance is a clothes dryer.

Claim 35. (previously presented) The system of claim 1 wherein the gas is propane.

Claim 36. (previously presented) The system of claim 1 wherein the electrical resistance igniter is a sintered ceramic igniter.

Claim 37. (previously presented) The system of claim 6 wherein the electrical resistance igniter is a sintered ceramic igniter.

Claim 38. (canceled)

Claim 39. (canceled)